

Date: Thu, 2 Dec 93 04:30:20 PST
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V93 #130
To: Ham-Ant

Ham-Ant Digest Thu, 2 Dec 93 Volume 93 : Issue 130

Today's Topics:

50 ohm coax to 75 ohm coax transformer
Beverage antenna help needed
LADDER LINE
Rugged 2 meter antenna.
Turnstile-Reflector

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 1 Dec 93 20:45:42 GMT
From: ogicse!hp-cv!hp-pcd!hpcvsnz!tomb@network.ucsd.edu
Subject: 50 ohm coax to 75 ohm coax transformer
To: ham-ant@ucsd.edu

Michael A Cecere (mac20@namaste.cc.columbia.edu) wrote:
: oh yeah, at 900MHz. would this be terribly complicated to homebrew?

: I want to go from f-type connector 75-ohm "cable" coax to, get this,
: 9913 N-type coax. (the section of 75 ohm is just to match to the transceiver,
: the 9913 has to run over 100')

An alternative to a 1/4 wave matching section of impedance $\sqrt{75 \times 50}$
is given in the RSGB VHF/UHF book. It uses only pieces of the two
lines you wish to match. Pardon the crude diagram:

Line1-----line2-----Line1-----line2

where the lengths of the intermediate lines are equal, and for the 75 ohm to 50 ohm case would be, as I recall, 0.081 wavelengths long (accounting for the propagation velocity in the cable). See the RSGB book for the formula, and to check on my memory about the 0.081. Kinda nice to know you can do the transformation without building a section of some intermediate impedance, but at 900MHz, these sections are rather short, and you would want to be really careful about lengths and assembly techniques. Probably easier to use at 2 meters and lower frequency.

Date: 30 Nov 1993 18:26:50 GMT
From: swrinde!sgiblab!darwin.sura.net!howland.reston.ans.net!noc.near.net!sunfish.hi.com!brainiac.hi.com!user@network.ucsd.edu
Subject: Beverage antenna help needed
To: ham-ant@ucsd.edu

In article <30NOV93.00113531.0094@UNBVM1.CSD.UNB.CA>, NAD0000 <NAD0@UNB.CA> wrote:

> [The Beverage] is quiet indeed. About as quiet as a dummy load!
> [...]
> Is this normal?

As Jukka Salonen (OH3NLP) mentions in another post, a Beverage does not exhibit gain over a dipole. It is directional both in elevation and azimuth, so you should expect some signals, especially high-angle signals, to be severely attenuated with respect to the dipole.

You don't specify the frequency range in which you are interested; since you do say that the Beverage is only 80 meters long, I assume you are interested in frequencies of 3.5 MHz and above. If you are trying for signals below 1.8 MHz, where your Beverage is 1/2 wavelength, then your Beverage is too short.

However, I think your problem is in your matching transformer:

> To make the transformer, going from 500 to 50 ohms, we soldered a
> wire Size #18 or so to the antenna wire (size #14, insulated) and
> turned it 50 turns on a plastic spool. Directly on top of this we put
> 10 turns of another wire, soldered to a regular 50ohm coax.

As Jukka noted, the 10:1 turns ratio is incorrect; the turns ratio should be about the square-root of 10. Also, I think the parasitic capacitance in your 50-turn (or 32-turn) primary is (will be) too high; your transformer will be resonant at some frequency determined by the inductance and parasitic capacitance of the primary. I suggest that you use a ferrite

toroidal core to wind a transmission-line transformer, which will have a much broader frequency response. I also think that an air-core transformer will have some loss due to weak coupling between the primary and secondary, You should use some kind of ferrite core to increase the coupling. Check out the Beverage transformer design in Devoldere's book "Low-band DXing" (now out of print, I think, but published by the ARRL). I'd describe it now, but I don't have the details handy.

In the absense of a new transformer, try just directly connecting the Beverage to your receiver antenna input. You will of course have loss due to the mismatch, but it should perform better than your current set-up.

Steve Byan	internet: steve@hicomb.hi.com
Hitachi Computer Products (America), Inc.	
1601 Trapelo Road	phone: (617) 890-0444
Waltham, MA 02154	FAX: (617) 890-4998

Date: 1 Dec 93 16:05:07 GMT
From: news-mail-gateway@ucsd.edu
Subject: LADDER LINE
To: ham-ant@ucsd.edu

I'm feeding a G5RV with 300 Ohm twin lead (low loss foam dielectric from RS)directly from a tuner. I am wondering whether I would be further ahead using 450 Ohm ladder line. I am concerned about the wire-to-wire voltages when I am running on 80 M and using say 500 watts peak. The SWR on the line must be high ... 5:1 or more, and since the voltages in the two sides of the dipole are out of phase, there must be some high voltages between the wires at the voltage nodes. What can 300 Ohm twin lead take? What can 450 Ohm ladder line take? How about 600 Ohm line if I could find some?

Thanks,

Alan
VE4AKM

Date: Thu, 25 Nov 93 01:54:07 GMT
From: mnemosyne.cs.du.edu!nyx10!rcanders@uunet.uu.net
Subject: Rugged 2 meter antenna.
To: ham-ant@ucsd.edu

In article <CGyHL3.8o2@cyberspace.org>, Klaus <n8nxf@cyberspace.org> wrote:
>

>I want to build a simple, rugged and efficient antenna to mount on
>my bicycles and kayak. I often help out with triathelons, mountain

>bike events, etc. I don't like sitting in a car, preferring to be
>mobile on the course. I need an antenna that can be whacked by
>trees and still perform well in hilly terrain. It seems to me that
>a J would be the best choice.

I decided that a Larsen 1/2 wave antenna was the way to go on my
recumbant bicycle. It doesn't need radials and it is strong, light and
weatherproof.

The problem with a j-pole is that it is 60" long.

--

Rod Anderson	"I do not think the United States government
rcanders@nyx.cs.du.edu	is responsible for the fact that a bunch of
	fanatics decided to kill themselves"
Clinton, Gore, gone in four	Slick Willie the Compassionate

Date: 1 Dec 93 21:35:08 GMT
From: news-mail-gateway@ucsd.edu
Subject: Turnstile-Reflector
To: ham-ant@ucsd.edu

Turnstile-Reflector

References

Satellite Experimenters Handbook (SEH)
ARRL Antenna Handbook (AAH)

Antennas consist of two half wavelength dipoles mounted
over a reflector.

The SEH shows patterns for two spacings 1/4 wavelength
and 3/8 wavelength. The 1/4 wave spacing produces
uniform gain at all elevation angles. The 3/8 has higher
gain at lower elevation angles and a dip overhead.

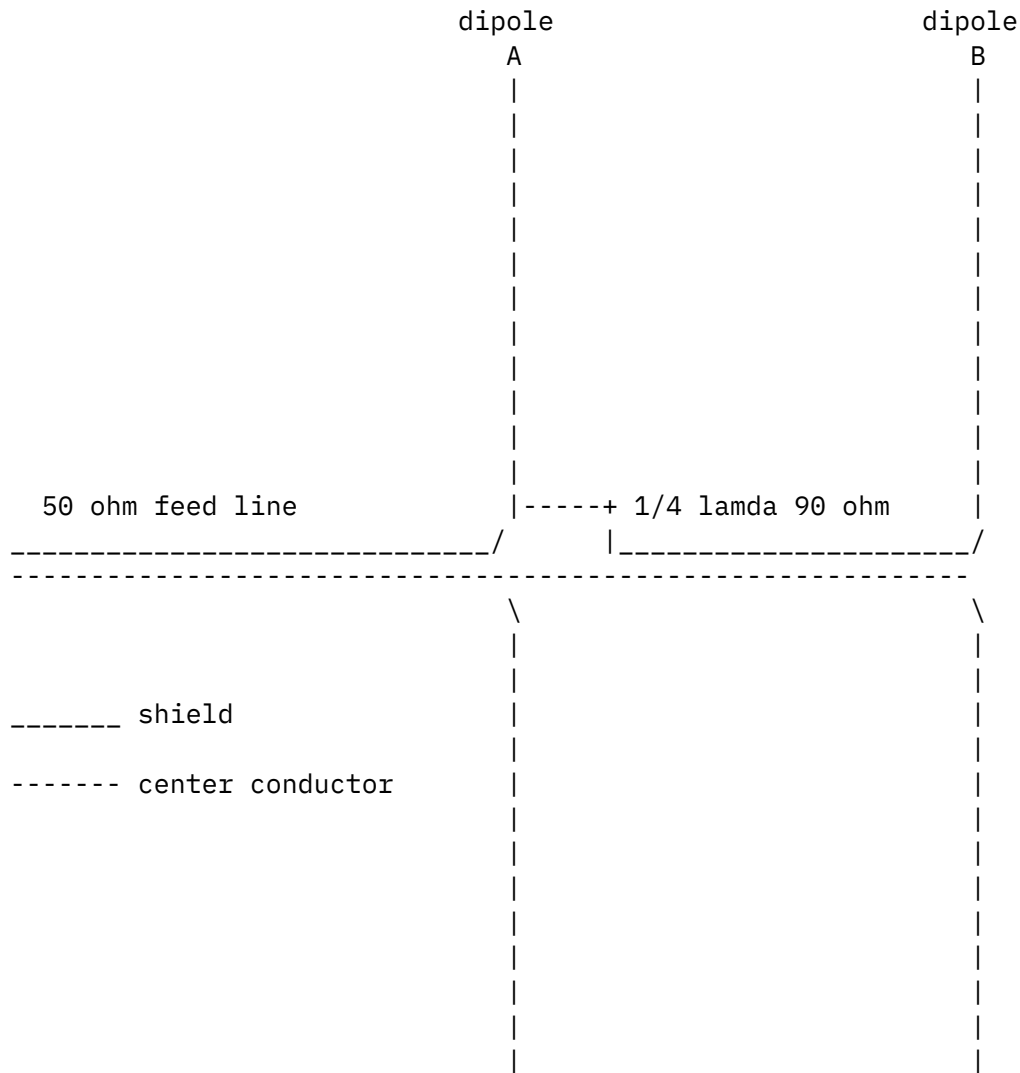
Both SEH and AAH suggests using the 3/8 spacing.

Dipoles are supported by a wooden (read non-conductive) post
in the center of a reflector.

The reflector consists of a wooden frame with wire screen

(chicken wire, window screen...). The AAH gives dimensions of 4 feet on a side for 146 Mhz and suggests using 20 guage 1-inch mesh.

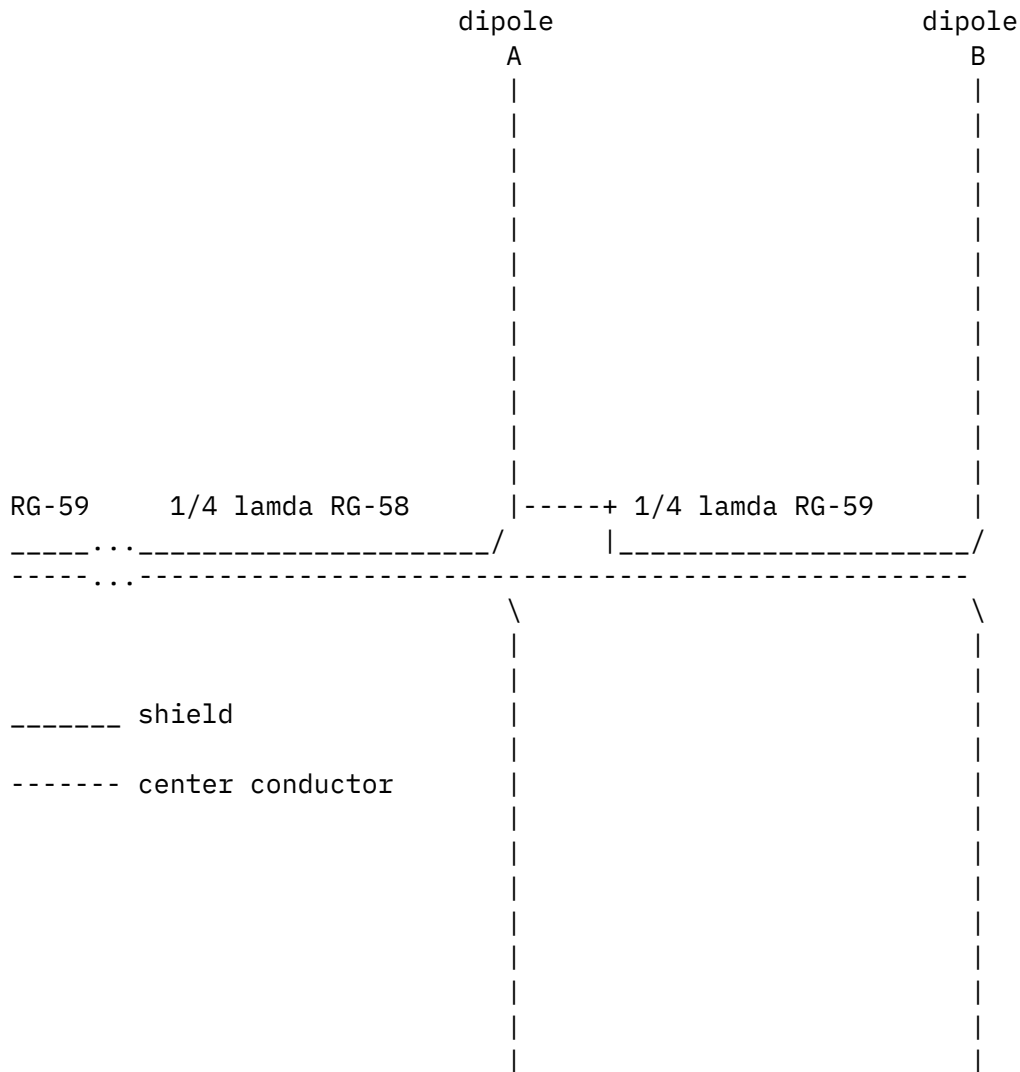
Feed arrangement (SEH)



To adjust the SWR connect the 50 ohm feed line to a 1/4 wave piece of RG-59 (75 ohms) coax and connect that to one of the dipoles. Trim the length of the dipole until the SWR is below 1.5:1. Cut the second dipole to the same length and connect as above. Final adjustment of the SWR is accomplished by small variations in the reflector to antenna separation.

The AAH shows an alternative feed system.

Feed arrangement (AAH)



The AAH implies the SWR is adjusted via the reflector/antenna spacing.

Hope this helps.

the views expressed here are the author's

C. Harper harper@huntsville.sparta.com or kd4qio@amsat.org

KD4QIO

SPARTA Inc (205) 837-5282 x1216 voicemail

4901 Corporate Drive (205) 830-0287 FAX

Huntsville AL 35805

"we have met the enemy and he is us." w. kelly

End of Ham-Ant Digest V93 #130
